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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/979,547      | 11/20/2001  | Ken Ishihara         | SAEGU95.001A        | 5022             |

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EXAMINER

Boyd, Jennifer A

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1771

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 09/979,547             | ISHIHARA ET AL.     |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Jennifer A Boyd        | 1771                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8, 9, 11 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 9, 11 and 18-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The Applicant's Amendments and Accompanying Remarks, filed December 8, 2003 have been entered and have been carefully considered. Claims 1, 3 – 4 and 8 - 9 are amended, claims 18 – 21 are added and claims 1 – 6, 8 – 9, 11 and 18 – 21 are pending. In view of Applicant's amendment, the Examiner withdraws the 35 U.S.C. 112, 2<sup>nd</sup> paragraph rejection of claims 3 and 4 as set forth in paragraphs 5 – 7 of the previous Office Action dated July 7, 2003. In view of Applicant's amendments, the Examiner withdraws all previously set forth rejections as detailed in paragraphs 8 – 13 of the previous Office Action dated July 7, 2003. Despite these advances, the invention as currently claimed is not found to be patentable for reasons herein below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 103***

3. Claims 1 - 5, 8 – 9, 11 and 18 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norio (JP A2 04-054165) in view of Christiansen et al. (US 4,398,277).

Norio is directed to electromagnetic wave-proof clothing material (Title).

As to claim 1, Norio teaches a electromagnetic wave-shielding garment which is knitted

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that has an ordinary fiber having an excellent hygroscopicity on one side of the fabric and a fiber plated with metal having excellent electroconductivity on the other side (Claim). In the translation of the patent application supplied by the United States Patent and Trademark Office, the ordinary fiber, or “natural fiber yarn”, can be cotton (page 4, lines 16 – 20).

As to claim 2, Norio teaches that the garment is knitted but gives no indication as to the type of knitted structure. It is the Examiner’s position that the garment can be a plain knitted structure.

As to claim 3, Norio teaches that the conductive fiber yarn can be mixed yarn which is plated with metal (page 3, lines 6 – 14). It should be noted that the use of mixed yarn implies a multifilament yarn. In one embodiment, the conductive yarn comprises a conductive metal electroplated on the surface of an acrylic long fiber yarn (page 4, lines 16 – 20).

As to claim 4, Norio teaches that the conductive fiber yarn can be a stainless steel thread (claim, line 3), equated to Applicant’s “fine wire”.

As to claim 5, Norio teaches that the “natural fiber yarn” can be cotton which is a purely natural yarn (page 4, lines 16 – 20).

As to claim 11, Norio teaches that the electromagnetic garment is used as a undergarment (page 1, lines 6 – 8).

As to claims 1, 8 and 9, Norio teaches the claimed invention except fails to teach the following limitations. Norio fails to teach that the conductive yarn is interknitted with a elastic fiber yarn and that the proportion of elastic fiber yarn is greater than 0 but not greater than 2/3 the total amount of conductive fiber yarn and elastic fiber yarn interknitted with each other as

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required by claim 1. Norio fails to teach that the elastic fiber yarn is a single-covered or double-covered yarn comprising a polyurethane thread as a stuffing thread covered with a nylon thread as required by claim 8 and that the elastic yarn has a denier of about 10 to 200 as required by claim 9.

Christiansen et al. teaches a fabric and body strap having both electrically conductive and elastomeric properties (Abstract). In one preferred embodiment, the fabric is knit together utilizing an electrically conductive yarn and an insulative yarn. The insulative yarn can comprise a 200 denier texturized nylon plaited over a 184 denier bare spandex (column 4, lines 37 – 63). The proportion of elastic fiber yarn to the total amount of yarn, using denier, is less than  $2/3$  as required by the Applicant.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the elastic yarn of Christiansen to interknit with the conductive yarn of Norio motivated by the desire to have a readily expansible material which maintains its elasticity over repeated usage and is breathable thus comfortable to the user (column 6, lines 34 – 41).

As to claims 3 and 18 – 20, Norio in view of Christiansen discloses the claimed invention except for that the denier is 2 to 8 as required by claim 3, the proportion of elastic fiber yarn is greater than  $1/3$  but not greater than  $2/3$  the total amount of conductive fiber yarn and elastic fiber yarn interknitted with each other as required by claim 18 and the proportion of elastic fiber yarn is greater than  $1/3$  but not greater than  $1/2$  the total amount of conductive fiber yarn and elastic fiber yarn interknitted with each other as required by claim 19 and the conductive fiber has a denier of 70 to about 210 and the spacing between the conductive fiber yarns is adjusted to

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have an electromagnetic wave shielding capacity of at least 20 dB as required by claim 20. It should be noted that the denier and proportion of elastic fiber to total fiber content are a result effective variables. For example, as the denier increases, the yarn becomes stronger but less flexible. As the elastic fiber ratio increases, the material becomes more stretchable. As the conductive fiber denier increases, the fiber becomes more conductive. As the spacing increases, the shielding capacity decreases. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create a yarn with a denier is 2 to 8 as required by claim 3, the proportion of elastic fiber yarn is greater than  $1/3$  but not greater than  $2/3$  the total amount of conductive fiber yarn and elastic fiber yarn interknitted with each other as required by claim 18, the proportion of elastic fiber yarn is greater than  $1/3$  but not greater than  $1/2$  the total amount of conductive fiber yarn and elastic fiber yarn interknitted with each other as required by claim 19 and the conductive fiber has a denier of 70 to about 210 and the spacing between the conductive fiber yarns is adjusted to have an electromagnetic wave shielding capacity of at least 20 dB as required by claim 20 since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the denier and proportion of elastic yarn in order to have an appropriately strong and flexible yarn to create a stretchable yet stable knitted material with the ideal shielding capacity.

As to claim 20, the details of the invention are discussed above.

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4. Claims 6 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norio (JP A2 04-054165) in view of Christiansen et al. (US 4,398,277), as set forth above, and in further view of Akopian et al. (US 5,968,854).

Norio in view of Christiansen teaches the claimed invention except fails to disclose that the conductive yarn structure is a silver-plated nylon yarn, the denier of the silver-plated nylon is 70 to 210, the natural fiber yarn has a count of 30 to 150, the fabric has a KES hand value of at least 6 and electromagnetic wave shielding capability of at least 20 dB.

Akopian teaches an EMI shielding fabric comprising silver-coated nylon yarns (Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use silver-coated nylon yarns as suggested by Akopian as the conductive yarn of Norio motivated by the fact that silver is not irritating to the skin, non-toxic, non-carcinogenic and has bactericidal properties (column 3, lines 25 – 40).

Norio in view of Christiansen and in further view of Akopian discloses the claimed invention except for that the denier of the silver-plated nylon is 70 to 210 and the natural fiber yarn has a count of 30 to 150. It should be noted that the denier is a result effective variable. For example, as the denier increases, the yarn becomes stronger but less flexible. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create a yarn with a the denier of the silver-plated nylon is 70 to 210 and the natural fiber yarn has a count of 30 to 150 since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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In the present invention, one would have been motivated to optimize the denier in order to have an appropriately strong and flexible yarn to create a knitted material.

Norio in view of Christiansen and in further view of Akopian does not explicitly teach the claimed KES hand value of at least 6 and electromagnetic wave shielding capability of at least 20 dB, it is reasonable to presume that KES hand value of at least 6 and electromagnetic wave shielding capability of at least 20 dB is inherent to Norio in view of Akopian. Support for said presumption is found in the use of like materials (i.e. a knitted fabric with a silver-nylon yarn on one side and a natural fiber yarn on the other side) which would result in the claimed property. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed property of KES hand value of at least 6 and electromagnetic wave shielding capability of at least 20 dB would obviously have been present once the Norio in view of Akopian product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

### ***Response to Arguments***

5. Applicant's arguments filed December 8, 2003 have been fully considered but they are not persuasive.

In response to Applicant's argument that the previously set forth rejections fail to disclose each and every element of the claimed invention, the Examiner respectfully argues the contrary. The Examiner has amended the rejection accordingly above in paragraphs 3 – 4 as unpatentable over Norio (JP A2 04-054165) in view of Christiansen et al. (US 4,398,277) and



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unpatentable over Norio (JP A2 04-054165) in view of Christiansen et al. (US 4,398,277), as set forth above, and in further view of Akopian et al. (US 5,968,854). Christiansen and Akopian address the deficiencies of the Norio reference.

In response to Applicant's argument that Christiansen et al. (US 4,398,277) is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Christiansen's device acts as a shield to a user by dissipating electric charge while Norio's device shields a user from radiated electromagnetic waves. It should be noted that both devices act as a wearable shield to protect a user from a hazardous environment, and therefore are considered to be in the same field of endeavor.

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In response to Applicant's argument that the specific proportion of the two fiber types has an unexpected advantage, the Examiner respectfully argues the contrary. According to the *In re Boesch* case law, such a parameter can be optimized. However, if the results are unexpected, then the Applicant must submit a Declaration explaining the unexpected result and how it is not a result of usual optimization to overcome the rejection.

### *Conclusion*


6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jennifer Boyd  
March 16, 2004

  
**Ula C. Ruddock**  
Primary Examiner  
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